

REMARKS

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

Restriction requirement

Applicants note that the restriction requirement has been made final and, accordingly, they have cancelled non-elected claims 1-22 without prejudice.

Drawings/Specification objections

Applicants have amended the specification to delete the reference to item 100, since this numeral was not used on Fig. 14. With respect to item 26 in Fig. 2 (and in Fig. 7), this is described in the specification at page 14, line 3 as being centrally located pattern recognition features. Applicants have also amended the specification on page 6 as suggested by the examiner.

Claim objections

Claim 35 has been rewritten as new claim 39 to incorporate the subject matter claim 23, as described further below.

Rejection under 35 USC § 112, second paragraph

The Examiner has questioned the phrase "distance between elements" in claim 23. As described in the specification at page 11, lines 20-23, the distance between the first contrasting set of elements refers to the period D shown for example in Fig. 2. As further described in the specification at page 13, lines 6-16, the distance between the second

contrasting set of elements is shown as the smaller period p of the elements as shown for example in sub-grids 24 of Fig. 2. The "elements" recited in claim 23 are whatever elements that are used, whether they are in the x- or y-directions. Accordingly, no amendment to the claim is believed required.

Allowable claims

Applicants note with appreciation that claims 27, 30, 31, 35 and 36 would be allowable if rewritten to overcome the § 112 rejection of claim 23, and to include all of the limitations of the base claim and any intervening claims. Applicants believe that claim 23 meets the requirements of § 112, second paragraph, and have rewritten claims 27, 30, 35 and 36 as new independent claims 37-40, respectively, incorporating the limitations of claim 23 and any intervening claims. Claims 27, 30, 35 and 36 have been cancelled, and claim 31, formerly dependent on claim 30, has been amended to be dependent on new claim 38.

Rejection under 35 USC § 102

Claims 23, 24, 26, 28, 33 and 34 stand rejected under 35 USC § 102 as being anticipated by Ota U.S. Patent No. 6,061,119. Applicant respectfully traverses this rejection.

Applicants' method of determining alignment error, as defined in claim 23, uses two different grid patterns, with the second grid pattern being nested within the first and having a plurality of grid segments in the x- and y-directions. The method then determines the centers of the two different grid patterns and compares them to determine the degree of alignment.

The Ota reference does not measure the centers of grid patterns as defined in applicants' claims. Instead, Ota measures the centers of prior art box-in-box patterns, similar to the type described in the background section of the instant application, and in applicants' Fig. 1. Ota's Fig. 7B shows the measurement of the box-in-box patterns MMij and SMij. Each large box MMij has only a single smaller box SMij – not a "plurality of grid segments in the x- and y-directions." If one were to view the shot area SAi as equivalent to applicants' "first contrasting set of elements," the comparison still fails since Ota does not measure and determine the center of shot area SAi. Accordingly, Ota does not anticipate applicants' claims 23, 24, 26, 28, 33 and 34.

Rejection under 35 USC § 103

Claim 25 stands rejected under 35 USC § 103 as being obvious from Ota in view of Mishima U.S. Patent Application Publication No. 2003/0053057. Applicants respectfully traverse this rejection.

Claim 25 is dependent on claim 23, and adds the subject matter of digitizing the location-signifying reflection intensity pattern with a predetermined pixel size. Ota does not disclose or suggest the underlying subject matter of claim 23, as discussed above. Mishima does not make up for Ota's deficiencies, and does not disclose applicants' claimed method of determining alignment error. As such, claim 25 is not obvious from the combination of Ota and Mishima.

Claims 29 and 32 stand rejected under 35 USC § 103 as being obvious from Ota in view of Leidy et al. U.S. Patent No. 6,350,548. Applicants also respectfully traverse this rejection.

Claims 29 and 32 are dependent on claim 23. Claim 29 add the subject matter of including a plurality second grid patterns formed on different lithographic layers of an electronic substrate, each of the second grid patterns being disposed within different segments of the first grid pattern. Claim 32 add that the grid segments formed by the first and second grid patterns comprise an array of rectilinear frames, with each frame having x and y dimensions equal to the distance between elements in the first and second sets of elements. Ota does not disclose or suggest the underlying subject matter of claim 23, as discussed above. Leidy does not make up for Ota's deficiencies, and does not disclose applicants' claimed method of determining alignment error. As such, claims 29 and 32 are not obvious from the combination of Ota and Leidy.

It is respectfully submitted that the application has now been brought into a condition where allowance of the entire case is proper. Reconsideration and issuance of a notice of allowance are respectfully solicited.

Respectfully submitted,



Peter W. Peterson

Reg. No. 31,867

DeLIO & PETERSON, LLC
121 Whitney Avenue
New Haven, CT 06510-1241
(203) 787-0595

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date indicated below as first class mail in an envelope addressed to the Mail Stop _____, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 2231301450.

Name: Barbara Browne
ibmf100410000amdA.doc

Date: January 18, 2005

Signature: Barbara Browne